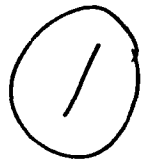


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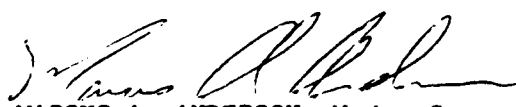
CONTRACT GROUND BASED TRAINING EVALUATION
Executive Summary

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May 1987

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CONTRACT GROUND BASED TRAINING EVALUATION

INTRODUCTION

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The United States Air Force (USAF) and several international countries fly the F-5 aircraft. Over the years, over 3,800 F-5 aircraft have been sold by the United States (US) to international countries. Twenty-seven countries currently fly the F-5 and could have an occasion to request flight training from the US. This training is provided at the 425 Tactical Fighter Squadron (TFTS) through the Security Assistance Training Program. The current F-5 training program consists of academic and flying instruction only. This is one of the few USAF flying programs not utilizing an Operational Flight Trainer (OFT) for training. Since 1982, requests for F-5 pilot training have exceeded the capability of the US to provide training. The availability of commercial training would increase the training opportunities for international countries. An evaluation of the Center for Advanced Airmanship (CAA) was performed to determine the feasibility of using contractor training in the US Security Assistance F-5 Training Program. The evaluation was performed by Tactical Air Command (TAC) with assistance from the Air Force Human Resources Laboratory (AFHRL) from Jul 86 to Jan 87.

The CAA is a commercially developed facility to provide F-5 ground based training. This is the first application of commercially provided fighter pilot training. The CAA is located in Tempe, AZ, which is in close proximity to the 425 TFTS located at Williams AFB, AZ. This facility is designed to provide academic and simulator training for F-5 pilots from basic through advanced courses in a squadron-like environment. Academic training consists largely of computer based training augmented with platform instruction. An F-5 simulator with a CompuScene III visual system provides hands-on practice of procedures to reinforce academic instruction and prepare the student for flying training. A student management system integrates academic and simulator training to provide feedback to the student and instructor.

METHODOLOGY

The evaluation consisted of two phases: (1) An assessment of training capabilities and (2) A training effectiveness evaluation of the CAA training program. A training capabilities evaluation was performed to validate the completeness and accuracy of CAA training materials. Academic instructors from the 425 TFTS reviewed all academic materials in the CAA program. F-5 Instructor Pilots (IPs) evaluated the capability of the OFT to support training. The training effectiveness evaluation involved two test classes, a USAF IP class and an International Basic Course class. International students were from the Royal Saudi Air Force. The USAF IPs were transitioning from the A-10 and F-15 aircraft. The performance of students in the test classes was compared to students with similar backgrounds in previous F-5 training classes. Students in the test classes received all ground based training (except egress) at the CAA.

RESULTS

TRAINING CAPABILITY EVALUATION. All academic material in the CAA program is accurate and complete. During the training capabilities evaluation, all academics were reviewed and corrected prior to student instruction. This review illustrated the need to maintain currency and accuracy in course materials. IPs indicated the instructional quality of the academic material was excellent. Academics were easily used and understood by the evaluators. IPs indicated the questions, problems, and interactive video disk material within the courseware would provide good student motivation and interaction. Evaluators recommended the inclusion of audio cues into the Computer Based Training (CBT) to provide additional feedback to students. The student management, tracking and feedback features of the CBT demonstrated outstanding human factors development.

The instructional quality of the simulator was rated very high, especially with its ability to allow students to repetitively practice maneuvers (e.g., bomb passes). During air-to-air tasks the visual system could not adequately support target acquisition. To remedy this problem, a target designator was added to the visual system allowing the target to be highlighted at the appropriate distance. This allowed recognition of aspect angle in a target. Normal operational problems were encountered during the evaluation; however, CAA took steps to correct these deficiencies in a timely manner prior to operational training. The student management system is designed to provide a briefing of simulator session objectives and a replay of simulator session events for debriefing. However, trouble was encountered in the evaluation of briefing/debriefing facilities due to equipment malfunctions. The simulator was very reliable throughout the entire evaluation with minimal downtime.

TRAINING EFFECTIVENESS EVALUATION. The training effectiveness evaluation demonstrated that contractor trained students were more prepared for flying training than non-contractor trained students. Fewer IP write-ups in flying and shorter briefing times indicated an increase in procedural knowledge of contractor trained students, particularly in local area procedures, switchology, instruments, radar procedures, positioning, intercepts, and range procedures.

The use of CBT for academic instruction provided a standardized training situation. In current platform instruction methods, it is difficult to standardize instruction due to the variety of instructors. The use of a touch screen was found to prevent any confusion in using keyboard by personnel inexperienced with computers or because of any international differences in keyboard structure. The self-paced nature of the instruction allowed students to progress at their own rate. However, this was somewhat restrictive due to the scheduling of simulator time.

USAF students indicated the simulator was one of the best they had used. They particularly liked the ability to repetitively practice maneuvers. This reinforced the procedures and academic material prior to flying.

Students were exceptionally well prepared for flying in local area and instrument procedures. Radar intercept training was also enhanced. The student was allowed to complete an intercept, an event that can be very difficult in the aircraft. Instructor course students were able to practice the "student" and "target" positions in radar intercepts. This provided them with an increased insight to their responsibilities as instructors.

The overall bomb scores of contractor trained IP students were approximately the same as USAF trained IP students. However, IP (USAF) students trained by the contractor qualified in weapons delivery sooner than USAF trained IP students. The overall bomb scores for contractor trained B-Course International Students were better than previous B-Course International Students. In the past, many B-Course international students never dropped a "qualifying" bomb (international students are not required to qualify in bombing). However, the contractor trained international students dropped bombs equivalent to "qualifying." The ability of the simulator to practice ordnance delivery procedures increased the potential of good bomb scores in the aircraft.

The briefing/debriefing facilities for the simulator were not functional during the evaluation. As a substitute, briefings and debriefings were done in the traditional chalkboard manner. After completion of the evaluation, contractor repaired hardware problems in the briefing/debriefing facility. The contractor training schedule allowed for delays and resulted in student complaints concerning the rate of instruction. Students indicated instruction was a "firehose" on the first few days, or "slow" on subsequent days. This situation occurs in current training, but is clouded by the fact that student pilots have the opportunity to "sandbag" additional flights.

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CONCLUSION

All of the CAA training materials are accurate and current. Use of CBT will provide a standardized course of instruction for all students, while allowing the student to progress at his own rate. Participation of standardization/evaluation personnel in the quality assurance of training methods and materials will ensure all materials remain current. The simulator added a valuable tool in the training process which was previously not available. Students who received contracted training were more prepared for flight training than those who did not. This allowed the current training program to be enhanced through a redistribution of flying sorties. Sorties in familiarization and instruments were reduced and reallocated to more complex training in the air-to-air phase. In addition, sorties were reduced in selected international courses. Effective use of contractor training, aircraft, and a reduction in support sorties resulted in a reduced training cost. Use of the contracted facilities for ground based instruction will change the methodology used to schedule students. More training days will be required to complete the training, because students will not be able to have academics and fly in the same day. In the past when weather caused delays in training, sorties could be made up through more flexible scheduling. This will still be possible, but only during the flying phases of the training. Depending on the student's progress, limited flexibility is available in CAA training. Students were very receptive to the program of instruction. The squadron-like environment and quality of instruction provided a positive learning experience.

This training concept was well received and can benefit future F-5 training. Instructors and students indicated that the training provided was excellent. This indicates ground based training can be effectively provided by a contractor for tactical training. Contracting academic and simulator training will allow a reduction in manpower required to support training.

Evaluation results were used to develop additional syllabi to integrate contracted training into all courses in the F-5 training program. As a result, Contract No. F44650-87-030005 was awarded in Apr 87. This contract provides CAA training for all international students as a standard part of the F-5 Security Assistance Training Program. This contract will also provide CAA training for selected USAF pilots involved in the F-5 Security Assistance Training Program. Detailed results of the evaluation are in an additional report, not available for unlimited distribution.

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